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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/144,607 08/31/98 CHESTER A 10061-1

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EXAMINER

PREISCH, N

ART UNIT

PAPER NUMBER

1764

DATE MAILED:

08/03/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/144,607

Applicant(s)
Chester et al.

Examiner
Nadine Preisch

Group Art Unit
1764



☒ Responsive to communication(s) filed on May 28, 1999

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-31 is/are pending in the application.

Of the above, claim(s) 20-27 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-19 and 28-31 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 8

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Election/Restriction

Applicants' election with traverse of Group I in Paper No. 7 is acknowledged. The traversal is on the ground(s) that the examiner's alternate use for the composition is speculation. This is not found persuasive because applicants have not provided any evidence that the proposed alternate use can not be accomplished.

The requirement is still deemed proper and is therefore made FINAL.

Removal of Objection to the Specification

Applicants' arguments submitted in paper no. 7 with respect to the improper incorporations by reference are persuasive. Applicants succeed at arguing that the specification would be adequate to accomplish the claimed invention without the references.

Claim Rejections - 35 U.S.C. § 112

Applicants' amendments submitted in paper no. 7 with are sufficient to overcome the previous 112 rejection.

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Claim Rejections - 35 U.S.C. § 103/102(b)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-19 and 28-31 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Collins et al.(5,482,617).

Applicants are claiming several processes for reducing the sulfur content of a catalytically cracked gasoline. The processes involve catalytically cracking a petroleum feed containing organosulfur compounds in the presence of a cracking catalyst and a product sulfur reduction catalyst.

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The reference of Collins et al.(5,482,617) discloses a desulfurization process for a catalytically cracked feedstream derived from an FCC process. See column 2, lines 38-55. The reference discloses that the hydrocarbon feedstream processed preferably contains an olefin along with aromatic components including benzene. See column 3, lines 11-15. The sources of such components include reformates and/or cracked pyrolysis and coker fractions. See column 3, lines 29-30. The process comprises contacting a feed containing organic sulfur compounds with a fluidized catalyst at elevated temperatures in the range of 700-850°F. See column 2, lines 30-36 and column 4, lines 4-5. The reference further teaches that the catalyst is regenerated and returned to the reactor using conventional regulator equipment and that the product stream can be fractionated. See column 5, lines 50-65. A product that is derived from the process is a gasoline range material. See column 5, line 2.

The reference teaches that the catalyst comprises a large pore molecular sieve in the form of a faujasite, a zeolite beta or a USY. See column 4, lines 35-38 and 62. The reference teaches that the catalyst may also comprise an intermediate pore size zeolite such as ZSM-5 or MCM-49. See column 4, lines 5-10. The reference further discloses that the molecular sieve component comprises a metal component such as a Group IB, IIB, IIIB, VA, VIA or VIIA metal. See column 5, lines 29-34. Collins et al.(5,482,617) discloses that zinc is a suitable metal. See column 5, line 42. The reference teaches a zeolite with a silica:alumina molar ratio in the range of 25:1 to 70:1. See column 5, lines 23-24. The particle size is in the range of 10-300 microns. See

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column 4, lines 55-58. The reference further teaches that the zeolite can be combined with a matrix material. See column 4, lines 20-22.

The reference of Collins et al.(5,482,6170) succeeds in disclosing a process with steps corresponding to applicants' claimed catalyst contacting, regeneration and fractionation. Furthermore, the reference also succeeds in disclosing a catalyst with components corresponding to those claimed by applicants. The reference's disclosure of a feed containing olefins and aromatics such as a reformat is considered to encompass a vacuum gas oil and/or heavy oil. Since the reference does not limit the alpha value of the catalysts, it is considered to encompass applicants' claimed alpha values and UCS'S (unit cell size). Furthermore, the alpha value and UCS value are inherent in the composition itself. Since the same catalysts are disclosed, the same alpha values and UCS values are encompassed. In addition, the references broad disclosure of a dense fluidized bed is considered to encompass any configuration of a fluidized bed, including a riser reactor.

It is noted that the reference does not refer to the disclosed zeolites/molecular sieves as cracking catalysts or product reduction catalysts. However, the disclosed compositions are considered to act in the capacity of cracking catalysts/product reduction catalysts because they would inherently accomplish the same conversion since they are contacted with the same feed under the same reaction conditions.

Applicants' process is anticipated by the reference of Collins et al.(5,482,617) because it discloses the same process steps and catalyst components.

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In the alternative, if the reference does not disclose applicants' specific combination of catalyst components or separate addition of different components, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select any combination of components disclosed by the Collins et al. reference, including the specific composition combinations and separate component addition claimed by applicants, because the reference discloses any combination to be suitable for accomplishing the disclosed process. Applicants have not demonstrated anything unexpected with respect to the specific combination of cracking catalyst and product reduction catalyst or to the separate addition of the sulfur reduction catalyst.

Since the reference does not limit the alpha value and/or UCS value of the zeolite catalyst, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select a zeolite with any alpha value and/or UCS value to accomplish an effective conversion in the process disclosed by the reference of Collins et al.(5,482,617), including the alpha values and UCS values claimed by applicants, because it is within the level of ordinary skill in the art to select a catalyst parameter in a known process in order to accomplish a desirable conversion.

Since the reference of Collins et al.(5,482,617) does not limit the feed reformat containing olefins and aromatics, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select a vacuum gas oil and/or heavy oil because a vacuum gas oil contains olefins and aromatics. Applicants have not shown anything unexpected with respect to selecting a vacuum gas oil.

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Also, applicants' fluidized bed limitation is not considered to be a patentable distinction because it is an apparatus limitation which does not affect the process steps in a manipulative sense. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select any apparatus which would accomplish the desired removal of sulfur, including a riser reactor, because it has been held that invention in a method must be found in the steps performed and not the apparatus employed. Ex Parte Hart, 117 USPQ 193 (Bd. Pat. App. & Int. 1958).

Response to Arguments

Applicant's arguments filed 5-28-99 have been fully considered but they are not persuasive.

Applicants argue the reference of Collins et al.(5,482,617) uses a low boiling point range feed which is distinct from the heavy feed used in the catalytic process of the present invention. Applicants also argue the Collins process is not a catalytic cracking process.

Applicants' arguments with respect to the difference in feed are not persuasive. The reference discloses that the feed can be derived from thermally cracked pyrolysis and coker fractions. The thermally cracked pyrolysis fractions and coker fractions and/or reformat are considered to correspond to applicants' "heavy hydrocarbon oil" feed. As a result, the reference of Collin et al.(5,482,617) is considered to disclose applicants' claimed feed.

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Applicants' argument wherein the Collins et al. (5,482,612) is not a catalytic cracking process is not persuasive. The reference similarly discloses contacting the feed with a catalyst at "elevated temperatures" which would inherently accomplish cracking because the same feed is contacted with the same catalyst under the same elevated conditions. Applicants' have not shown that the Collins et al. process does not accomplish cracking.

Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

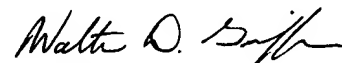
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nadine Preisch whose telephone number is (703) 305-2667. The examiner can normally be reached on Monday through Thursday from 7:30 am to 6:00 pm.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

August 1, 1999
N.P.

WP



Walter D. Griffin
Primary Examiner